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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/460,844	12/14/1999	AMIR HEKMATPOUR	AUS9908343-U	3026

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[REDACTED] EXAMINER

JONES, HUGH M

ART UNIT	PAPER NUMBER
2123	3

DATE MAILED: 05/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No. 09/460,844	Applicant(s) Hekmatpour
Examiner Hugh Jones	Art Unit 2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on Dec 14, 1999

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-29 is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-29 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some* c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) The translation of the foreign language provisional application has been received.

15) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____

2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) Other: _____

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DETAILED ACTION

1. Claims 1-29 of U. S. Application 09/460,844, filed 12/14/1999 are presented for examination.

Claim Interpretation

2. The claims have been provided the broadest, most reasonable interpretation.
3. In anticipation of applicant's argument that the references fail to show certain features of applicant's claimed invention (claims 1-15), it is noted that the features upon which applicant relies (i.e., "design errors *in an integrated circuit*" recited in the preface) are not recited in the limitations of the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). In claims 1-15, the recitation "design errors *in an integrated circuit*" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for

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completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. **Claims 22-29 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.** Claims 22-29 appear to recite a computer program product. It should be noted that code (i.e., a computer software program) does not do anything per se. Instead, it is the code stored on a computer that, *when executed*, instructs the computer to perform various functions. The following claim is a generic example of a proper computer program product claim;

A computer program product embodied on a computer-readable medium and comprising code that, when executed, causes a computer to perform the following:

Function A

Function B

Function C, etc...

Double Patenting

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6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

7. A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

8. Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 1-29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-30 of U.S. Patent No. 6,553,548. Although the conflicting claims are not identical, they are not patentably distinct from each other because although the limitations have been variously rearranged and the preambles have been worded differently, the two sets of claims are obvious variations of each other. For example, pending claim 1 recites identifying design errors while patented claim 1 recites recovering from design

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errors. Furthermore, patented claim 1 recites an intended use of applying the invention to integrated circuits, while pending claim 1 only recites integrated circuit in the preamble. It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the teachings of inference engines to integrated circuit error analysis because integrated circuit design is prone to many different types of errors and underlying causes. The use of an inference engine to aid in the determination of the causes would simplify error analysis of integrated circuits.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. **Claims 1-15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Loopik et al. or Quintero et al. or Hekmatpour (Applicant - 5,696,885).**

12. Loopik et al. disclose circuit assembly testing systems and systems and methods for debugging circuit test systems and diagnosing faults in circuit assemblies. *An expert system derives possible root causes of test failures, predicts test results based on these possible root causes and uses factual observations to refute inconsistent hypothetical root causes. Tests*

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useful in refuting inconsistent hypothetical root causes are devised and run automatically by the system. See figures 1-8 and corresponding text.

13. Quintero et al. disclose an expert system for use in designing a connected collection of components which are available or can be made in different forms, e.g. which can be described by a selected number of variables. The expert system includes a knowledge base and an inference engine. The knowledge base includes records pertaining to constant and variable characteristics of connectable components and rules for combining a component with other components. The inference engine allows selecting a record for a first component, then a record for only those second components which can be connected to the first component, and storing information about the connections. See col. 2, lines 9-42; col. 7, line 1 to col. 10, line 62.

14. Hekmatpour (Applicant - 5,696,885) disclose an expert system and processing method employing a three level hierarchical knowledge base that has a plurality of nodes coupled together. An uppermost level comprises a behavioral knowledge level, a middle level comprises a structural knowledge level and a lowermost level is an action level. Inference processing proceeds from the behavioral knowledge level through the structural knowledge level to a leaf node of the action level. One or more non-inferentially assessable utilities may be associated with the inference kernel of the expert system for accessing during inferential processing within the hierarchically structured knowledge base. A knowledge editor implements guidelines that structure received information in the desired hierarchical three level configuration. Further, interactive multimedia/hypermedia systems and methods are presented, which might be expert

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system based. Training and certification applications of the multimedia/hypermedia system/method are given. See figures 4, 12, 14, 21 and corresponding text.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. The factual inquiries set forth in *Graham v. John Deere Co.*, 148 USPQ 459, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or unobviousness.

17. **Claims 16-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Loopik et al..**

18. Loopik et al. disclose circuit assembly testing systems and systems and methods for debugging circuit test systems and diagnosing faults in circuit assemblies. *An expert system derives possible root causes of test failures, predicts test results based on these possible root*

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causes and uses factual observations to refute inconsistent hypothetical root causes. Tests useful in refuting inconsistent hypothetical root causes are devised and run automatically by the system. See figures 1-8 and corresponding text.

19. The applied prior art disclose all limitations and features as discussed earlier, including equivalent mathematical representations, but does not expressly disclose the *matrix* operations, as claimed.

20. At the time of the invention, it would have been an obvious matter of design choice to a person of ordinary skill in the art to consider matrix operations because Applicant has not disclosed that using the matrix provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the applied prior art because the use of a matrix would not affect the teachings of the applied prior art. Therefore, it would have been an obvious matter of design choice to modify the applied prior art to obtain the invention as specified in the claims.

21. **Claims 16-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quintero et al. or Hekmatpour (5,696,885) in view of Loopik et al..**

22. Quintero et al. disclose an expert system for use in designing a connected collection of components which are available or can be made in different forms, e.g. which can be described by a selected number of variables. The expert system includes a knowledge base and an inference engine. The knowledge base includes records pertaining to constant and variable characteristics of connectable components and rules for combining a component with other components. The

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inference engine allows selecting a record for a first component, then a record for only those second components which can be connected to the first component, and storing information about the connections. See col. 2, lines 9-42; col. 7, line 1 to col. 10, line 62.

23. Hekmatpour (Applicant - 5,696,885) disclose an expert system and processing method employing a three level hierarchical knowledge base that has a plurality of nodes coupled together. An uppermost level comprises a behavioral knowledge level, a middle level comprises a structural knowledge level and a lowermost level is an action level. Inference processing proceeds from the behavioral knowledge level through the structural knowledge level to a leaf node of the action level. One or more non-inferentially assessable utilities may be associated with the inference kernel of the expert system for accessing during inferential processing within the hierarchically structured knowledge base. A knowledge editor implements guidelines that structure received information in the desired hierarchical three level configuration. Further, interactive multimedia/hypermedia systems and methods are presented, which might be expert system based. See figures 4, 12, 14, 21 and corresponding text.

24. The applied prior art disclose all limitations and features as discussed earlier, but does not expressly disclose that the intended use is for integrated circuits, as claimed.

25. Loopik et al. disclose circuit assembly testing systems and systems and methods for debugging circuit test systems and diagnosing faults in circuit assemblies. *An expert system derives possible root causes of test failures, predicts test results based on these possible root causes and uses factual observations to refute inconsistent hypothetical root causes. Tests*

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useful in refuting inconsistent hypothetical root causes are devised and run automatically by the system. See figures 1-8 and corresponding text.

26. It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the teachings of inference engines to integrated circuit error analysis because integrated circuit design is prone to many different types of errors and underlying causes as taught by Loopik et al.. The use of an inference engine to aid in the determination of the causes would simplify error analysis of integrated circuits.

Conclusion

27. **Any inquiry concerning this communication or earlier communications from the examiner should be:**

directed to:

Dr. Hugh Jones telephone number (703) 305-0023, Monday-Thursday 0830 to 0700 ET, *or* the examiner's supervisor, Kevin Teska, telephone number (703) 305-9704. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, telephone number (703) 305-3900.

mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

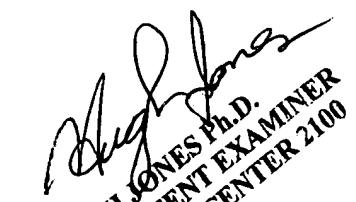
(703) 308-9051 (for formal communications intended for entry)
or (703) 308-1396 (for informal or draft communications, please label "PROPOSED" or "DRAFT").

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Dr. Hugh Jones

Primary Patent Examiner

May 25, 2003



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